

RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 10/581,810
Source: IFWO
Date Processed by STIC: 3/14/07

ENTERED



IFWO

RAW SEQUENCE LISTING

DATE: 03/14/2007

PATENT APPLICATION: US/10/581,810

TIME: 14:58:16

Input Set : N:\efs\03_14_07\10581810_efs\HERR13001APCSEQLIST.TXT

Output Set: N:\CRF4\03142007\J581810.raw

```

4 <110> APPLICANT: Ortega Mora, Luis MIGuel
5      Fernandez Garcia, Aurora
8 <120> TITLE OF INVENTION: Use of gene NcSAG4 for the diagnosis and
9      prevention of neosporosis and as a marker for analysis of
10     the pathogenesis
12 <130> FILE REFERENCE: HERR13.001APC
14 <140> CURRENT APPLICATION NUMBER: US 10/581,810
15 <141> CURRENT FILING DATE: 2006-06-02
17 <150> PRIOR APPLICATION NUMBER: PCT/ES2004/000529
18 <151> PRIOR FILING DATE: 2004-11-26
20 <150> PRIOR APPLICATION NUMBER: ES P200302869
21 <151> PRIOR FILING DATE: 2003-12-04
23 <160> NUMBER OF SEQ ID NOS: 15
25 <170> SOFTWARE: FastSEQ for Windows Version 4.0
27 <210> SEQ ID NO: 1
28 <211> LENGTH: 23
29 <212> TYPE: DNA
30 <213> ORGANISM: Neospora caninum
32 <220> FEATURE:
33 <221> NAME/KEY: modified_base
34 <222> LOCATION: 6
35 <223> OTHER INFORMATION: I
37 <400> SEQUENCE: 1
W--> 38 tggacntayg ayttyaaraa rgc 23
40 <210> SEQ ID NO: 2
41 <211> LENGTH: 23
42 <212> TYPE: DNA
43 <213> ORGANISM: Neospora caninum
45 <220> FEATURE:
46 <221> NAME/KEY: modified_base
47 <222> LOCATION: 12, 15, 18, 21
48 <223> OTHER INFORMATION: I
50 <400> SEQUENCE: 2
W--> 51 aaraargara tnatnacncc ngg 23
53 <210> SEQ ID NO: 3
54 <211> LENGTH: 23
55 <212> TYPE: DNA
56 <213> ORGANISM: Neospora caninum
58 <220> FEATURE:
59 <221> NAME/KEY: modified_base
60 <222> LOCATION: 3
61 <223> OTHER INFORMATION: I
63 <400> SEQUENCE: 3

```

RAW SEQUENCE LISTING

DATE: 03/14/2007

PATENT APPLICATION: US/10/581,810

TIME: 14:58:16

Input Set : N:\efs\03_14_07\10581810_efs\HERR13001APCSEQLIST.TXT

Output Set: N:\CRF4\03142007\J581810.raw

```

W--> 64 acnggytcrt cyttcartg rtc                                     23
66 <210> SEQ ID NO: 4
67 <211> LENGTH: 24
68 <212> TYPE: DNA
69 <213> ORGANISM: Neospora caninum
71 <220> FEATURE:
72 <221> NAME/KEY: modified_base
73 <222> LOCATION: 22
74 <223> OTHER INFORMATION: I
76 <220> FEATURE:
77 <221> NAME/KEY: misc_feature
78 <222> LOCATION: 7
79 <223> OTHER INFORMATION: n = A,T,C or G
81 <400> SEQUENCE: 4

W--> 82 rtcytttnacy ttraarcara angg                                   24
84 <210> SEQ ID NO: 5
85 <211> LENGTH: 20
86 <212> TYPE: DNA
87 <213> ORGANISM: Neospora caninum
89 <400> SEQUENCE: 5
90 ccgacgaagc cctgagaact                                           20
92 <210> SEQ ID NO: 6
93 <211> LENGTH: 19
94 <212> TYPE: DNA
95 <213> ORGANISM: Neospora caninum
97 <400> SEQUENCE: 6
98 tgtcgcctgt tgggttgta                                           19
100 <210> SEQ ID NO: 7
101 <211> LENGTH: 24
102 <212> TYPE: DNA
103 <213> ORGANISM: Neospora caninum
105 <400> SEQUENCE: 7
106 gaaacaagaa aagagactat ctca                                     24
108 <210> SEQ ID NO: 8
109 <211> LENGTH: 20
110 <212> TYPE: DNA
111 <213> ORGANISM: Neospora caninum
113 <400> SEQUENCE: 8
114 ccaggtgaga gtgtttcgat                                           20
116 <210> SEQ ID NO: 9
117 <211> LENGTH: 601
118 <212> TYPE: DNA
119 <213> ORGANISM: Neospora caninum
121 <220> FEATURE:
122 <221> NAME/KEY: CDS
123 <222> LOCATION: (48)...(568)
125 <400> SEQUENCE: 9
126 ggcaacacgt cgcagcgtac tctcatcttt ttcgtgggtt tgcagcc atg gag aaa 56
127                                     Met Glu Lys

```

RAW SEQUENCE LISTING

DATE: 03/14/2007

PATENT APPLICATION: US/10/581,810

TIME: 14:58:16

Input Set : N:\efs\03_14_07\10581810_efs\HERR13001APCSEQLIST.TXT

Output Set: N:\CRF4\03142007\J581810.raw

```

128                                     1
130 agc gcc ttc ttt ccc agg gtg gtg ctc tgt ttc gtc gta gtt ttg tcc 104
131 Ser Ala Phe Phe Pro Arg Val Val Leu Cys Phe Val Val Val Leu Ser
132      5                10                15
134 gcg tgc tcg gcg tgg cga gtg gaa ggg aag aac tgg tcg tac gat ttc 152
135 Ala Cys Ser Ala Trp Arg Val Glu Gly Lys Asn Trp Ser Tyr Asp Phe
136 20      25      30      35
138 aag aag ccg ctg gac agc gat gaa aca aga aaa gag act atc tca cca 200
139 Lys Lys Pro Leu Asp Ser Asp Glu Thr Arg Lys Glu Thr Ile Ser Pro
140      40      45      50
142 ggt gag agt gtt tcg ata caa aat tct ggg agc att acg ctg gcg tac 248
143 Gly Glu Ser Val Ser Ile Gln Asn Ser Gly Ser Ile Thr Leu Ala Tyr
144      55      60      65
146 aac cca aca ggc gac aca caa gtt ctc agg gct tcg tcg gga gac agc 296
147 Asn Pro Thr Gly Asp Thr Gln Val Leu Arg Ala Ser Ser Gly Asp Ser
148      70      75      80
150 tgc agg gat gag cca atc gaa ctt gcg act tta ttc cca gca gcc acg 344
151 Cys Arg Asp Glu Pro Ile Glu Leu Ala Thr Leu Phe Pro Ala Ala Thr
152      85      90      95
154 ccg gcg ccc acg tgg atg caa act ggt agc acg aga acc tta gcg ttt 392
155 Pro Ala Pro Thr Trp Met Gln Thr Gly Ser Thr Arg Thr Leu Ala Phe
156 100      105      110      115
158 cct acc aac gca gta ccc gcg aag cag acc acg ccg ttc tgt ttt aaa 440
159 Pro Thr Asn Ala Val Pro Ala Lys Gln Thr Thr Pro Phe Cys Phe Lys
160      120      125      130
162 gtc acg gat acg cag aag aac aaa act ctg aca gcg ata atc aag gtc 488
163 Val Thr Asp Thr Gln Lys Asn Lys Thr Leu Thr Ala Ile Ile Lys Val
164      135      140      145
166 gcc ggt gcc caa ggc ttg tct gct gct ctg ggg gtc tcc att gga ata 536
167 Ala Gly Ala Gln Gly Leu Ser Ala Ala Leu Gly Val Ser Ile Gly Ile
168      150      155      160
170 cca gct ctt gct ttt gca ctg agt tcg ata ta agggcatgca aacgaataaa 588
171 Pro Ala Leu Ala Phe Ala Leu Ser Ser Ile
172      165      170
174 tgaggcgact gat 601
176 <210> SEQ ID NO: 10
177 <211> LENGTH: 173
178 <212> TYPE: PRT
179 <213> ORGANISM: Neospora caninum
181 <400> SEQUENCE: 10
182 Met Glu Lys Ser Ala Phe Phe Pro Arg Val Val Leu Cys Phe Val Val
183 1      5      10      15
184 Val Leu Ser Ala Cys Ser Ala Trp Arg Val Glu Gly Lys Asn Trp Ser
185      20      25      30
186 Tyr Asp Phe Lys Lys Pro Leu Asp Ser Asp Glu Thr Arg Lys Glu Thr
187      35      40      45
188 Ile Ser Pro Gly Glu Ser Val Ser Ile Gln Asn Ser Gly Ser Ile Thr
189      50      55      60
190 Leu Ala Tyr Asn Pro Thr Gly Asp Thr Gln Val Leu Arg Ala Ser Ser

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/581,810

DATE: 03/14/2007

TIME: 14:58:16

Input Set : N:\efs\03_14_07\10581810_efs\HERR13001APCSEQLIST.TXT

Output Set: N:\CRF4\03142007\J581810.raw

```

191 65          70          75          80
192 Gly Asp Ser Cys Arg Asp Glu Pro Ile Glu Leu Ala Thr Leu Phe Pro
193          85          90          95
194 Ala Ala Thr Pro Ala Pro Thr Trp Met Gln Thr Gly Ser Thr Arg Thr
195          100          105          110
196 Leu Ala Phe Pro Thr Asn Ala Val Pro Ala Lys Gln Thr Thr Pro Phe
197          115          120          125
198 Cys Phe Lys Val Thr Asp Thr Gln Lys Asn Lys Thr Leu Thr Ala Ile
199          130          135          140
200 Ile Lys Val Ala Gly Ala Gln Gly Leu Ser Ala Ala Leu Gly Val Ser
201 145          150          155          160
202 Ile Gly Ile Pro Ala Leu Ala Phe Ala Leu Ser Ser Ile
203          165          170
206 <210> SEQ ID NO: 11
207 <211> LENGTH: 26
208 <212> TYPE: DNA
209 <213> ORGANISM: Neospora caninum
211 <400> SEQUENCE: 11
212 gccaggatcc atggagaaaa gcgcct 26
214 <210> SEQ ID NO: 12
215 <211> LENGTH: 31
216 <212> TYPE: DNA
217 <213> ORGANISM: Neospora caninum
219 <400> SEQUENCE: 12
220 ttcgaattcc ttatatcgaa ctcaagtcaa a 31
222 <210> SEQ ID NO: 13
223 <211> LENGTH: 28
224 <212> TYPE: DNA
225 <213> ORGANISM: Neospora caninum
227 <400> SEQUENCE: 13
228 ttatggatcc ggaagaactg gtcgtacg 28
230 <210> SEQ ID NO: 14
231 <211> LENGTH: 30
232 <212> TYPE: DNA
233 <213> ORGANISM: Neospora caninum
235 <400> SEQUENCE: 14
236 tttgaattcc ttaggcgacc ttgattatcg 30
238 <210> SEQ ID NO: 15
239 <211> LENGTH: 155
240 <212> TYPE: PRT
241 <213> ORGANISM: Neospora caninum
243 <400> SEQUENCE: 15
244 Met Arg Gly Ser His His His His His Gly Met Ala Ser Met Thr
245 1          5          10          15
246 Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp Lys Asp
247          20          25          30
248 Arg Trp Ile Arg Lys Asn Trp Ser Tyr Asp Phe Lys Lys Pro Leu Asp
249          35          40          45
250 Ser Asp Glu Thr Arg Lys Glu Thr Ile Ser Pro Gly Glu Ser Val Ser

```

RAW SEQUENCE LISTING

DATE: 03/14/2007

PATENT APPLICATION: US/10/581,810

TIME: 14:58:16

Input Set : N:\efs\03_14_07\10581810_efs\HERR13001APCSEQLIST.TXT

Output Set: N:\CRF4\03142007\J581810.raw

```

251      50      55      60
252 Ile Gln Asn Ser Gly Ser Ile Thr Leu Ala Tyr Asn Pro Thr Gly Asp
253 65      70      75      80
254 Thr Gln Val Leu Arg Ala Ser Ser Gly Asp Ser Cys Arg Asp Glu Pro
255      85      90      95
256 Ile Glu Leu Ala Thr Leu Phe Pro Ala Ala Thr Pro Ala Pro Thr Trp
257      100      105      110
258 Met Gln Thr Gly Ser Thr Arg Thr Leu Ala Pro Thr Asn Ala Val Pro
259      115      120      125
260 Ala Lys Gln Thr Thr Pro Phe Cys Phe Lys Val Thr Asp Thr Gln Lys
261      130      135      140
262 Asn Lys Thr Leu Thr Ala Ile Ile Lys Val Ala
263 145      150      155

```

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/10/581,810

DATE: 03/14/2007
TIME: 14:58:17

Input Set : N:\efs\03_14_07\10581810_efs\HERR13001APCSEQLIST.TXT
Output Set: N:\CRF4\03142007\J581810.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; N Pos. 6 ✓
Seq#:2; N Pos. 12,15,18,21 ✓
Seq#:3; N Pos. 3 ✓
Seq#:4; N Pos. 7,22 ✓

VERIFICATION SUMMARY

DATE: 03/14/2007

PATENT APPLICATION: US/10/581,810

TIME: 14:58:17

Input Set : N:\efs\03_14_07\10581810_efs\HERR13001APCSEQLIST.TXT

Output Set: N:\CRF4\03142007\J581810.raw

L:38 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:0
L:51 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0
L:64 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:0
L:82 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:0